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Energy Section

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TO: The Board

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SUBJECT: Summary of Participants' Comments

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I. Background

Docket No. NOI-2008-0003 was initiated in response to the requirements of the Energy Independence and Security Act of 2007 (EISA). On March 9, 2010, the Board issued an order that expanded the inquiry to include smart grid deployment in Iowa and also scheduled a workshop. On March 29, 2010, the Board issued its Order Temporarily Prohibiting Aggregators of Retail Customers from Operating in Iowa and Allowing Comments.¹ A second workshop on smart grid and aggregation of retail customers was held on April 16, 2010.² After the second workshop, additional comments from participants were received on May 10, 2010. On November 19, 2010, and May 16, 2011, staff submitted memos to the Board summarizing the various activities staff had been monitoring related to smart grid deployment in Iowa and other states. On October 14, 2011, the Board issued its Order Soliciting Comments which contained specific questions related to both smart grid and aggregators of retail customers (ARCs). MidAmerican Energy Company (MEC) and Interstate Power and Light Company (IPL) were required to respond to the questions contained in the order and other participants were invited to respond to some or all of the questions in the order. The following parties filed comments:

Interstate Power and Light Company	IPL
MidAmerican Energy Company	MEC
Office of Consumer Advocate	Consumer Advocate
Iowa Association of Electric Cooperatives	IAEC
Iowa Association of Municipal Utilities	IAMU
Missouri River Energy Services ³	MRES
Demand Response Supporters ⁴	DR Supporters
Lon Crosby, Ph.D.	Dr. Crosby

The questions from the order are listed below along with summaries of the responses from the various parties. It should be noted that not all parties responded to each question. MRES and the DR Supporters provided responses only to the ARC related questions while Dr. Crosby gave general comments and recommendations not relating to a particular question.

¹ This became an issue due to FERC's directive to regional transmission organizations, such as MISO, to amend their rules to allow ARCs to offer demand resources into wholesale and ancillary services markets, if allowed by state commissions.

² An aggregator joins two or more customers into a single purchasing unit to negotiate the purchase of electricity from retail electric providers or utilities.

³ MRES is a not-for-profit joint action agency comprised of 61 municipalities located in Iowa, Minnesota, North Dakota, and South Dakota. MRES has 19 Iowa members who each own and operate municipal electric utilities that provide electric service to Iowa consumers.

⁴ DR Supporters consists of: Comverge, Inc., EnerNOC, Inc., Energy Connect by Johnson Controls, Energy Curtailment Specialists, Inc., the Environmental Law & Policy Center of the Midwest, Wal-Mart Stores, Inc., and Sam's West, Inc.

II. Questions Regarding Smart Grid Issues

1. What is your long-term vision for the future of the electric grid?

IPL Response: Technological developments regarding smart grid over the past several years have shifted somewhat from primarily customer-facing applications toward technologies that support improved delivery system (grid) operational performance and efficiencies. IPL expects that following current utility deployments and investments driven by the American Recovery and Reinvestment Act of 2009 (ARRA), utility business case drivers for deployment will be based on lessons learned, and validate results associated with other automated metering infrastructure (AMI) and smart grid deployments. IPL sees strong interdependence between other technology investments utilities need to make to leverage the large amounts of data available from advanced electric grid technologies (i.e. customer information systems or meter data management systems). Depending on the benefits the utility plans to leverage, decisions about the order of implementation of these technology investments will be key.

MEC Response: MEC believes that full deployment of smart grid technologies should be driven by value to customers, not by policy initiatives. MEC will continue to monitor demonstration pilots throughout the country, customer feedback regarding smart grid technology applications, and ongoing debates in national forums. MEC will continue to inform the Board about smart grid deployments in lieu of filing formal plans.

Consumer Advocate Response: The primary function of the electric grid has been to enable the provision of reliable electric service to consumers at just and reasonable rates. In recent years, the electric grid has been used to support the achievement of a robust wholesale energy market and to integrate new generation resources needed to meet electric demand. It will be important in expanding and integrating new generation resource developments including demand side management, renewable resources, and distributed generation. According to a 2010 paper by the Vermont Energy Investment Corporation (VEIC) the smart grid should evolve to provide the greatest efficiency and reliability in the generation, delivery, and use of electricity, while minimizing long-term consumer and environmental costs.⁵ The Consumer Advocate has previously emphasized the benefits of smart grid enhancements to improve distribution system reliability which does not depend on consumer response education, and continues to view these as leading smart grid opportunities. There may be greater interest in implementing smart grid delivery system enhancements that offer more certain benefits that are not dependent on consumer receptiveness or action. Full deployment of smart grid technologies should be driven by value to customers, predicated on a thorough benefit-cost analysis, and preceded by steps to mitigate rate impacts associated with smart grid investments. It will be useful to periodically evaluate findings based on monitoring of smart grid deployments around the country through this or a related inquiry proceeding.

⁵ http://www.veic.org/Libraries/Resource_Library_Documents/ElecricEvolution.sflb.ashx

IAEC Response: IAEC believes the grid must be safe, reliable, affordable, and constructed, operated, and maintained in the most environmentally sensitive manner possible. Deployment of technology needs to deliver benefits commensurate to the costs. A one size fits all approach does not seem feasible or prudent. The vision for IAEC is that the electric grid would become more automated and capable of providing both the utility and the customer with more accurate and timely information.

2. What are the goals for your smart grid components and network? Will it be a flash cut approach or rolled out in phases?

IPL Response: IPL listed the following four goals for future smart grid initiatives:

1. Enabling active consumer participation in managing energy usage and costs through energy efficiency and demand response;
2. Improving the utility's efficiency in customer service and billing activities, emergency response, and load management;
3. Maintaining reliability of (aging) infrastructure and improving grid efficiency and capacity through enhanced asset management, monitoring and self-healing capabilities; and
4. Preparing the grid for integration of renewable and distributed energy resources such as wind, solar, bio-gas and plug-in hybrid electric vehicles.

IPL believes the overarching goal that will matter most to customers is the provision of reliable and exceptional service at a reasonable cost. Therefore, IPL plans to emphasize goals 2 and 3 above. IPL has an ongoing initiative to steadily improve its ability to monitor and control the fleet of substations through use of existing and new technologies. IPL expects future metering-related AMI infrastructure could be deployed in a flash cut or tactically in phases. Other components such as software systems would likely be rolled out in phases either before or after the primary network rollout.

MEC Response: MEC will determine whether the flash cut or phased in approach will be used when it has decided that it is beneficial to customers to implement smart grid components. MEC's smart meter plans include developing strategies to take full advantage of automated meter reading-related technologies and deploying new technologies when customer benefits can be demonstrated. MEC will continue to monitor demonstration projects, customer feedback, and opportunities for deployment on the transmission and distribution side of the business. Pilot projects may be implemented to evaluate technologies, customer acceptance, and benefits.

Consumer Advocate Response: Smart Grid components such as AMI devices which are dependent on consumer action for their efficient function should be thoroughly evaluated prior to full implementation. The evaluation or pilot should assess needed customer education, customer satisfaction, and whether it more efficiently delivers utility service to consumers. It is critical that customer information systems (CIS) and online capabilities also be fully evaluated before implementation of metering-related AMI

infrastructure. Services such as time-of-use (TOU) rates and Critical Peak Pricing should be offered on a voluntary basis, particularly to residential and smaller general service customers. In the Advanced Metering Notice of Inquiry Proceeding (NOI-06-3), the Board noted the need for additional research and expressed its intent to begin informal discussions with utilities and other interested parties to develop a pilot project to test various types of advanced metering and time-based rates. The VEIC report notes that analyses of AMI should include demand response as a primary benefit, which necessitates a transition from flat-rate pricing to dynamic pricing in order to more accurately reflect the true costs of electricity delivery at different times of day. The VEIC report notes that the argument for widespread deployment seems to be at least partially contradicted by pilot studies showing that the average decrease in peak consumption is driven by a small number of "star" performers who reduced consumption dramatically. VEIC identifies the following issues for policymakers to address before any widespread deployment of AMI:

1. Determine which type of dynamic pricing to implement;
2. Establish minimum AMI technology standards;
3. Ensure that lowest-first-cost requirements do not result in an underinvestment in sufficiently upgradable technology;
4. Ensure consumers have appropriate technologies and information that enable them to effectively respond to dynamic prices;
5. Provide consumer protections for those who are unable to respond effectively to dynamic prices;
6. Find the appropriate balance between compensating utilities for legitimately unforeseeable stranded asset cases while holding utilities responsible for making short-sighted investments;
7. Pace smart grid investments in such a way that the cumulative benefits correspond with the timing needs for the consumer and/or utility.⁶

IAEC Response: Although IAEC itself does not plan on implementing any smart grid projects, many of the IAEC members are at various stages of implementation. IAEC considers upgraded meters a necessary component of a smart grid and notes that a number of IAEC members have submitted waiver requests to the IUB and have identified plans for upgrading their meters. Although not necessarily an exhaustive list, these include the following:

1. Humboldt County Rural Electric Cooperative plans to replace all 2,300 meters in a 2-year period;
2. Butler County Rural Electric Cooperative plans to replace all 6,530 meters during a 5-year period;
3. Clark Electric Cooperative Inc. plans to replace all 6,100 meters in a 2-year period;

⁶ For instance, a utility will need to launch its demand response program several years ahead of when it needs the additional capacity.

4. Calhoun County Electric Cooperative Association plans to replace all 2,055 meters in a 3-year period;
5. Prairie Energy Cooperative plans to replace all 5,000 meters during a 1-year period;
6. Allamakee-Clayton Electric Cooperative, Inc. plans to replace all 9,550 meters during a 6-year period;
7. Southwest Iowa Rural Electric Cooperative plans to replace all 6,000 meters in a 2-year period;
8. Heartland Power Cooperative plans to replace all 6,200 meters in a 3-year period;
9. Eastern Iowa Light & Power Cooperative plans to replace all of its meters (over 25,000) in a 3-year period; and
10. Maquoketa Valley Electric Cooperative planned to replace all of its 15,698 meters by January 1, 2010.

3. What changes in smart grid technology has your company seen in the last two to three years?

IPL Response: Based on IPL's involvement in Electric Power Research Institute's (EPRI) Smart Grid related research, IPL states there has been an increased focus on, and progress in, the development of technologies supporting Volt/Volt-Amps Reactive optimization and software systems and tools for leveraging smart grid data. Developments in data analytical solutions are producing tools capable of complex analytic processes that transform data in order to identify such things as theft detection, emerging equipment defects, power quality issues, transformer overloading, and nested power outages.

MEC Response: MEC noted that the U.S. Department of Energy selected the Virginia Tech Advanced Research Institute to design, populate, manage, and maintain a public Smart Grid Information Clearinghouse portal⁷ to provide the latest information on smart grid developments. It includes demonstration projects, use cases, standards, legislation, policy and regulation, lessons learned and best practices, technologies, and research and development. Information gathered during a stakeholder smart grid collaboration with the Illinois Commerce Commission shows significant advancements have been made in the area of AMI.⁸ Additionally MEC has noticed development in the following smart grid areas: in-premises communications, security measures; second generation plug-in electric vehicles; and transmission and distribution technologies.

Consumer Advocate Response: The Consumer Advocate currently has no information responsive to this question.

⁷ The SGIC portal: <http://www.sgicclearinghouse.org>

⁸ The Illinois Statewide Smart Grid Collaborative report issued September 30, 2010: <http://www.ilgridplan.org/Shared%20Documents/ISSGC%20Collaborative%20Report.pdf>

IAEC Response: IAEC has seen a number of its members invest in AMI technology allowing for two-way communications with the customer's meter and an increased investment in SCADA systems that allows for more automated outage management. Some IAEC members have used this to link to the outage map maintained by IAEC.

4. Are your customers requesting smart grid services or devices?

IPL Response: IPL does not have a formal way of tracking either direct or indirect requests for smart grid services/devices from residential or small commercial customers. IPL has developed an option for industrial customers to view daily usage via a web-based interface and receive monthly reports with that information. The city of Dubuque requested IPL install approximately 1,000 AMI meters for customers participating in the "Smarter Electricity Project."

MEC Response: MEC's customers are not currently requesting smart grid services or devices, but have shown interest in hearing about new and future smart grid services and devices that could be integrated with the existing automated meter reading (AMR) system at smart grid specific events such as MEC's 2011 EmpowerU.

Consumer Advocate Response: Apart from the Dubuque Smart Meter initiative, the Consumer Advocate is not aware of Iowa customers requesting smart grid devices. In some instances consumer interest has been declining. For example, the Boulder pilot had an initial enrollment of 4,685 but reports 4,000 in September, 2011. Reasons cited for dropping from the program included customer moves, customer choice, conflict with other programs, and other reasons. Some Minnesota utilities are reporting customer reluctance to use smart grid technology which is becoming a major barrier to their wider use. Connexus Energy, the largest cooperative in Minnesota, is taking a three-year break from considering installing AMI on customer buildings based on results of a recent pilot program. The Minnesota PUC plans to hold periodic stakeholder smart grid meetings.

IAEC Response: While IAEC does not have direct retail customers, it suspects that customers may be asking for smart grid related technology indirectly by requesting improved reliability and more affordable electric rates.

5. To the extent smart grid installations have been deferred or delayed, why has that occurred?

IPL Response: IPL continues to install smart grid components incrementally on its distribution system but has delayed large-scale smart grid installations for three primary reasons.

1. Sensitivity to near-term customer rate impacts for smart grid investments;
2. The rapid evolution of smart grid technology; and

3. The lag in development of standards for interoperability between systems and components to further leverage this technology for quantifiable customer benefits.

Utilities' evaluation of smart grid involves monitoring the results of actual deployments, changing hardware capabilities, and changing software systems in term of the various components for their infrastructure. As technology emerges and benefits become more significant for customers, IPL expects to move forward with its smart grid strategy.

MEC Response: Customer complaints have been a major factor in the deferral or delay of smart grid installations. Every smart meter deployment reviewed as part of the SmartGrid Consumer Collaborative study⁹ experienced consumer complaints. Complaints typically concerned radio frequency-related health impacts, data privacy and security, overbilling, rate increases, and meter read job loss. In California, complaints led the California Public Utilities Commission to require the electric utilities to offer customers an option to opt out of smart meters. The Maine Public Utilities Commission also decided to permit customers to opt-out of the smart meter program. Utilities are also delaying installations due to concerns about the value of smart grid investments, technology complexities, data storage costs and performance, security of data and the lack of an interoperability and communication standard. However, even with these deferrals and delays, the Institute for Electric Efficiency has improved its outlook for smart meter deployments which was previously reported in February 2010 at 60 million by 2019 to 65 million by 2015.¹⁰

Consumer Advocate Response: Based on a review of industry publications, it appears that customer concerns have arisen in almost all large scale deployments of AMI technology. Although the number of customer complaints is generally reported as being small in the overall scope of deployments, it is likely that customer concerns are more wide spread than just the documented complaints. Consumer surveys, education, and outreach with a stronger focus on consumer benefits are essential to successful deployments of AMI technology. The Sacramento Municipal Utility District used consumer forums prior to AMI deployment, and, according to reports,¹¹ has avoided major issues with its deployment.

IAEC Response: IAEC is not aware of any delays to smart grid installations for cooperatives in Iowa except for the possible delay in prepaid meter components.

IAMU Response: IAMU provided updates on two grant-funded projects—the \$5 million Smart Grid Investment Grant from the U.S. Department of Energy, and the development of time-of-use rates for three utilities. These two grants are also providing funding for

⁹ <http://smartgridcc.org/sgccs-excellence-in-consumer-engagement-study>

¹⁰ http://www.edisonfoundation.net/iee/Documents/SmartMeter_Rollouts_0911.pdf

¹¹ Platts Electric Utility Week, p. 2 (October 31, 2011)

deployment of smart meters and data collection systems in Algona (system-wide deployment), Atlantic, Cedar Falls, and Waverly (pilot projects of various sizes). Spencer completed a system-wide conversion to AML without grant funds.

Smart Grid Investment Grant (SGIG): The original proposal included 75 municipal utilities (65 from Iowa and 10 from Wisconsin and Minnesota). The utilities would install smart thermostats with communication modules allowing the utility to increase the air-conditioning temperature during critical peak-use periods by 1-2 degrees. Only five Iowa utilities are participating in the grant.¹² IAMU developed training materials, a marketing program that included customer education, and sophisticated analytical tools to evaluate costs and benefits. The primary reasons the project did not meet the participation goals include: the inability to get power supply entities to support the project on behalf of their members, product development and supply issues, and customer resistance.

Dynamic Pricing Project: The focus of this project is to develop time-of-use rates for three utilities based on the relevant MISO pricing history at the nearest commercial node. These analyses were completed for Algona, Spencer, and Waverly. The rate structures will use four time-of-use rates with seasonal variations. These rates have not been implemented and the timing and extent of their use has not yet been determined by the utilities. Utilities that purchase power from municipal power supply agencies or rural electric generation and transmission companies cannot easily move to time sensitive rates because they do not receive time-of-use price signals.

6. What have been the advances in cyber security as it relates to protection of your individual customer data?

IPL Response: IPL's customer information is maintained by its CIS and not within individual customer metering. Customers can access their individual account data through a web interface which is protected by a secure systems architecture featuring robust firewalls, encryption, and authentication techniques, password protections, and policies. There have not been any significant recent advancements in cyber security for systems such as IPL's; however, IPL's IT security group stays current on advancements in cyber security.

MEC Response: The data collected through the AMR meters does not contain customer-specific information and customer usage data is not communicated back to MEC over any type of network interface that would be susceptible to cyber attacks. Cyber security will remain an issue to be monitored at the national level as the national Smart Grid Interoperability Panel continues to develop a catalog of standards and practices for coordinating the development of a framework of protocols and model standards for the smart grid. MEC agrees with the stakeholder conclusions from the

¹² Algona, Atlantic, Cedar Falls, Rockford, and West Point.

Illinois statewide smart grid collaborative that the protection of AMI-enabled data access is crucial to smart grid deployment and operation. Additionally, it will be important to monitor state policy regarding data privacy and data access issues for consumers.

IAEC Response: IAEC has not specifically studied the cyber security issues but is aware of a smart grid demonstration project that deals with this issue. IAEC referenced a document titled "Guide to Developing a Cyber Security and Risk Mitigation Plan,"¹³ which discusses cyber security risks, recommendations, and methodology for addressing the risks.

IAMU Response: With respect to the SGIG smart thermostat grant, participants are not collecting customer data, but do have a comprehensive cyber security plan approved by the U.S. Department of Energy. IAMU addressed the potentially onerous security obligations for small utilities by using a control system hosted at a secure third-party facility.

Consumer Advocate Response: The Consumer Advocate currently has no information responsive to this question.

7. What rights over the consumer data does the utility have?

IPL Response: IPL believes it has the right to collect and use energy consumption data to support the delivery of its core utility services and fulfill other obligations to its retail customers. IPL was involved in the development of the model business practices recommended by the North American Energy Standards Board in its document titled "Third Party Access to Smart Meter-Based Information."¹⁴ IPL supports its use in applying business practices to handling of customer data.

MEC Response: The Critical Consumer Issues Forum concluded in their principles on grid modernization that protecting individual consumer information from unauthorized disclosure is essential to successful grid modernization.¹⁵ Electric utilities must continue to have access to and the ability to use customer-specific energy usage data but must continue to protect the data from unauthorized access. Unless other uses are affirmatively authorized by a state or federal regulatory authority or by the consumer, utilities must limit their use of this data to that necessary for the provision of regulated services. Disclosure to a third party would require consumers' affirmative consent.

¹³ <http://www.nreca.coop/bestbets/cybersecurity>

¹⁴ A copy of the document is provided as Attachment A.

¹⁵ The Critical Consumer Issues Forum is a group of state commissioners, consumer advocates, and electric industry representatives working to address consumer issues.

Consumer Advocate Response: The Consumer Advocate generally agrees with comments indicating the utilities have the right to use consumer data as necessary in their provision of regulated utility services.

IAEC Response: The utility has as much right to the customer's electric consumption or usage data as the customer does. Utilities use the data for billing purposes, load forecasting, etc. IAEC cites the case, *United States v. McIntyre*, 646 F. 3d 1107 (8th Cir. 2011), in which the Court held that the utility's provision of a customer's electric usage data for his home to law enforcement pursuant to a subpoena did not violate the fourth amendment of the U.S. Constitution. However, IAEC would provide a different response if the Board is referring to personal identifying information (social security number, address, etc.).

8. What safeguards can be built into the system to prevent the consumer data from being stolen or corrupted as it is being sent from the premises?

IPL Response: Information delivered from the Dubuque AMI meters is delivered over a licensed 900 MHz proprietary two-way radio communication network which cannot be decoded with commercially available equipment without employing data encryption techniques. Additionally, IPL notes that no personally identifiable information is stored on the AMI meters installed in Dubuque therefore no special security techniques are required. In the past year, one vendor, Sensus, has developed secure AMI systems, and has achieved the smart grid industry's first Achilles security certification. Achilles security certification is an internationally recognized cyber security accreditation from Wurdtech Security Technologies, a leading provider of security products and services for the industrial automation industry.

MEC Response: MEC uses encryption technology to protect AMR meter usage data from being collected and interpreted without an authorized collection device and the meters provide notification if tampering occurs. The data from the AMR meter does not contain customer-specific information, only the latest meter read and the meter identification number.

Consumer Advocate Response: The Consumer Advocate currently has no information responsive to this question.

IAEC Response: IAEC has not studied this issue but believes there are a number of possible solutions to make sure data are secure.

9. Is there any history of smart meters, advance metering infrastructure, substation automation, or distributed automation communications networks being hacked or otherwise compromised? If so, please explain.

IPL Response: IPL has no direct knowledge of such systems or networks having been hacked or compromised.

MEC Response: MEC's system has not been compromised by any type of cyber attack but MEC deploys the latest security measures to protect against these attacks. MEC is aware that the number of cyber attacks on U.S. utilities has increased over the last year citing the growing number of requests for assistance from the control system security program cyber experts based at the Idaho National Laboratory.¹⁶ One such attack covered in a Bloomberg Businessweek article was on an Iranian uranium enrichment facility in Natanz last year. The virus used exploited well-known design flaws common to many system controllers—vulnerabilities that in general can't be patched.¹⁷

Consumer Advocate Response: The Consumer Advocate currently has no information responsive to this question.

IAEC Response: IAEC is not aware of any instances of such networks being hacked or compromised successfully. IAEC also understands that its member utilities have intrusion prevention systems, firewalls, and other computer security systems in place to safeguard against hackers and viruses but does not have details concerning these programs.

10. How will the consumer get access to the metered data and what software or other mechanisms will be made available to the consumer to understand their usage data?

IPL Response: IPL has no specific plans but continues to monitor technological changes and customer expectations and interest before investing in these tools. There are many possible ways for a customer to be provided access to metered energy usage data. Some of the tools IPL currently supports and could be expanded in the future to include additional metered data, include: web-based customer account systems, monthly billing statements, and periodic mailings of energy usage reports. Some examples of accessing meter usage data available with newer customer information systems include: Short message service (SMS) text messaging to mobile devices, email alerts or messages, and advanced customer web-portals. Wisconsin Power and Light (WPL)¹⁸ is conducting a pilot project that provides detailed hourly usage information to customers using Google's PowerMeter (Google has since discontinued this product), as well as some in-home displays. WPL will analyze the results from this and other pilots to study the interest and benefits from providing usage information to

¹⁶ The Idaho National Laboratory responded to 116 requests for assistance in 2010, and 342 by the third quarter of 2011.

¹⁷ <http://www.businessweek.com/ap/financialnews/D9Q2ILSG0.htm>

¹⁸ IPL's sister utility in Wisconsin.

customers. IPL also supports and has been involved in the development of interoperability standards for home area networks and smart devices/appliances. IPL is a member of the Utility Smart Network Access Port Alliance which worked closely with EPRI to establish a Modular Communication Interface (MCI) specification for home area networking (HAN) and demand response devices. Such an interface is important to provide an open standard to enable communications between AMI smart meters and HAN devices. The next step is to work with the Consumer Electronics Association to make the MCI specifications a formal American National Standards Institute (ANSI) standard, which would hopefully result in the development of highly interoperable HAN and demand response devices in the consumer retail marketplace.

MEC Response: MEC's customers can currently access their monthly and historical meter data by logging onto their account on MEC's web site. Additionally, MEC is deploying its Opower pilot project which provides some customers with home energy reports including detailed usage information and helpful tips about conserving electricity. MEC believes that in-home displays, currently being tested, will eventually be integrated with existing displays such as computers, televisions, and thermostats. Energy management systems are also being developed that will provide a means to act on the additional consumption information being provided.

Consumer Advocate Response: The Consumer Advocate generally agrees with utilities' responses discussing software and other mechanisms that can be provided to the consumer to understand usage data. Regulators have a role to play in guiding utilities' selection of software or other mechanisms to enable consumer access and understanding of usage data. According to the VEIC report, the key challenge for regulators is to keep a clear perspective on big-picture goals to help assure that the right technology is selected. VEIC suggests that regulators ask the following questions:

1. Is software and firmware easily upgradeable remotely?
2. What is the optimal latency of meter reading, properly balancing functionality with economical deployment and use?
3. Since equipment that is upgradeable often has higher first costs, how do decision makers ensure they do not under invest initially?

IAEC Response: IAEC anticipates that customers may receive their individual metered data through a variety of mechanisms such as the internet, smart phones, and other new technology. Solutions exist that allow utilities to present usage data in different formats such as graphs to make it easier for customers to comprehend and use the data to influence customer behavior.

11. What do you think the impact will be of behind-the-meter web tools that allow tracking of home energy usage on energy efficiency and other utility matters? Will these types of programs take the place of some smart grid functions?

IPL Response: Tracking home energy usage is a smart grid function whether the tools, data, or systems are provided by the utility company or through retail products installed by the customer. IPL states that where no AMI meter is present, devices such as the PowerCost Monitor™ or The Energy Detective (TED) device could be useful for customers interested in managing their electric energy usage.

MEC Response: Customers who have access to electricity tracking tools will be able to monitor their consumption which in turn will motivate some of them to reduce electrical usage. Customers wishing to reduce their electrical usage will seek out energy efficiency measures; therefore, MEC believes these tracking tools will have a short-term positive effect on energy efficiency. The American Council for an Energy-Efficiency Economy conducted a review of a variety of new residential feedback initiatives that on average have reduced individual household electricity consumption by 4 to 12 percent. Baltimore Gas and Electric's three year pilot produced peak reductions of between 22 and 37 percent.¹⁹

Consumer Advocate Response: All web tools that track energy usage need customer energy consumption data. There are two kinds of web tools, one reads smart meter data and the other requires the customer to enter monthly energy data. Both tools will analyze the data, report, or give customers advice based on the analysis. The web tools that read real time data will enhance the functions of smart meters by making the data more user-friendly. They will also take the place of some smart grid functions.

IAEC Response: IAEC does not see behind-the-meter applications as a suitable replacement to utility installed smart grid infrastructure since the utility will need real-time metering information to implement time-of-use or other advanced rate structures.

12. Has your company (or an affiliate) studied the relationship between energy efficiency and smart grid? If so, what were the findings?

IPL Response: Many studies have been done which look at the impact of smart grid enabled devices, rates, and programs on customer usage characteristics, including energy efficiency and demand response but it is difficult to apply the results to each utility with different customer demographics and locations. IPL's sister utility, WPL's pilot has found that many customers perceive that energy is saved by having the energy usage information, but WPL is evaluating whether those perceptions are valid. As part of the City of Dubuque Smarter Electricity Project, IBM is using analytic tools it has developed to understand energy savings opportunities of customers who have access to a web portal that displays comparisons of monthly energy usage to prior years, to established goals, and to peer consumers. WPL is also conducting an ARRA Smart Grid Investment Grant project to optimize the power factor on its distribution system through sophisticated control of VAR flows on a continuous basis. This project should reduce line losses and also facilitate active voltage optimization on distribution feeders

¹⁹ <http://aceee.org/researchsh-report/e105>

that could provide significant reductions in energy usage, and/or system demand, through reduced operating voltages.

MEC Response: MEC has been monitoring smart grid deployments but has not studied the relationship between energy efficiency programs and the smart grid. MEC is currently focused on consumer outreach and education in its pilot project with the Opower home energy reports which began in late October, 2012.

Consumer Advocate Response: The utilities apparently do not yet have much information about the relationship between energy efficiency and smart grid, however, the VEIC report provides a good discussion of this relationship as well as other efficiency justifications for smart grid.

IAEC Response: IAEC has not done any studies but presumes that a customer who is better educated about his or her energy use will be better equipped to make wise choices concerning energy efficiency programs and options. IAEC argues that even if a customer doesn't use the information, the utility would be able to use the information to develop better energy efficiency programs.

13. Does the emergence of numerous "past-the-meter devices" (i.e., energy management devices) affect the benefits utilities expect from smart grid deployment?

IPL Response: Smart grid projects are much more than AMI or smart metering and there are a multitude of smart grid technologies, applications, and services which can provide significant benefits that go beyond providing detailed energy usage information. IPL included EPRI's March 2011 report titled, "Estimating the Costs and Benefits of the Smart Grid" as Attachment B. This report categorizes smart grid benefits by the three primary stakeholder groups—consumers, utilities, and society. It provides an estimated range of the (2010) net present worth of smart grid benefits with a low of \$1.294 billion and a high of 2.028 billion.

MEC Response: The Critical Consumer Issues Forum concluded that smart grid developments will provide new opportunities for innovative technologies that result in direct and indirect benefits to all stakeholders.²⁰ The American Council for an Energy-Efficiency Economy investigated recent pilot projects and concluded that providing households with frequent, ongoing, and meaningful feedback regarding energy consumption resulted in significant residential sector energy savings. However, not all feedback technologies, programs, and contexts were the same and these differences helped determine the likely effectiveness of feedback in reducing energy consumption. The gadgets alone did not maximize household energy savings—their success depended heavily on consumer acceptance and participation.²¹

²⁰ <http://www.nasuca.org/archive/CCIF%20Grid%20Modernization%20Report%20July2011%20Final.pdf>

²¹ <http://aceee.org/research-report/e105>

Consumer Advocate Response: These devices will perform some of the same functions as smart grid, but at much lower costs. If more of these devices are installed, the expected benefits of smart grid deployment will be affected because the energy savings will have already been realized. It is possible that smart grid deployments such as AMI will encourage more installations and more rapid adoption of past-the-meter devices than would otherwise occur.

14. Has the technology for consumer-level energy management devices progressed to the point where homeowners or small businesses find them cost-effective or feasible?

IPL Response: The cost and complexity of energy management devices are still barriers to customer adoption but IPL believes that once interoperability standards are established and adopted the barriers will be reduced.

MEC Response: Greentech Media estimated that approximately 6 million U.S. households (representing about 10 percent of the expected 65 million households with smart meters) will have some type of home energy management device by 2015.²² Despite this rapid growth, concerns about the adverse effects of smart meters continue to dominate conversations among regulators, consumer advocates, and electric utilities.²³ Acceptance and adoption of consumer-level energy management devices and software may be premature, especially since two free products (Google PowerMeter and Microsoft Holm) were discontinued due to very slow enrollment rates. Commonwealth's Customer Applications Program project in Illinois produced counterintuitive results. Households that received a basic or advanced in-home display (IHD) showed a slight increase in electricity demand during all summer hours, the workability of IHDs was limited by the range of the radio-based signal from the meter, and installation rates were low even when the unit was free to the customer.²⁴

Consumer Advocate Response: The Consumer Advocate has recommended that the investor-owned electric utilities evaluate this question as part of the utilities' ongoing energy efficiency assessment of potential.

IAEC Response: The IAEC has no information on whether homeowners or small businesses find these devices cost effective or feasible.

²² <http://www.greentechmedia.com/research/report/smart-grid-han-strategy-2011>

²³ http://www.electric-efficiency.com/reports/IEE_BenefitsofSmartMeters_Final.pdf

²⁴ <http://comedamifuture.com/Resources/ComEd%20CAP%20Final%20Analysis%201023644.pdf>

15. What studies are available on the topic of "phantom loads," that is, energy used in standby mode by various plug-in electrical devices (set-top boxes, battery chargers, and other devices that use electricity when they appear to be off)? Do any of these studies include data applicable to Iowa utilities or energy users?

IPL Response: IPL describes several EPRI reports but notes that the data has no demographic correlations to make it more or less applicable to Iowa utilities or energy users. There was a report published by the Energy Center of Wisconsin²⁵ which studied home electronics and other plug-in devices in Minnesota which would make it more or less applicable to Iowa utilities and energy users.

MEC Response: MEC referenced several websites (Lawrence Berkeley National Laboratory²⁶ and the U.S. Department of Energy²⁷) but noted that the reports or studies provided by the web sites were not specific to Iowa.

Consumer Advocate Response: The Consumer Advocate did not find Iowa data through an internet literature review, however, the following studies should be applicable to Iowa utilities and energy users given they are based on the same consumer products—TVs, computers, set-top boxes, audio components, coffee makers, garage door openers, and dishwashers:

1. The Lawrence Berkeley National Laboratory in Berkeley, California, has a website on the subject of standby power which includes a list of important research papers.²⁸
2. A comprehensive research document prepared by LBNL for California Energy Commission's Public Interest Energy Research Program, Low-Power Mode Energy Consumption in California Homes. This report estimated that in 2006 the average low-power mode energy use in California was 980 kWh per home or roughly 13 percent of residential electricity use.²⁹
3. The International Energy Agency (IEA) has worked to raise the profile of standby power starting in the early 1990's and has proposed to limit the standby power to 1-Watt per device around the world.³⁰

²⁵ "Electricity Savings Opportunities for Home Electronics and Other Plug-In Devices in Minnesota Homes: A Technical and Behavioral Field Assessment," EPRI, May 2010, included as Attachment C.

²⁶ <http://standby.lbl.gov/standby.html> and <http://standby.lbl.gov/summary-table.html>

²⁷ http://www.energysavers.gov/your_home/appliances/index.cfm/mytopci+10040http

²⁸ <http://standby.lbl.gov/docs.html>

²⁹ <http://www.energy.ca.gov/2008publications/CEC-500-2008-035/CEC-500-2008-035.PDF>

³⁰ <http://www.iea-4e.org/>

IAEC Response: IAEC is not aware of any such studies or data.

16. There is no question number 16.

17. What is the likelihood that issues relating to phantom loads will be resolved by improvements in specific technologies or federal standards? If phantom loads are not amenable to standards or in-the-box technology solutions, how likely are individual households to undertake the behavioral changes needed to manage these devices?

IPL Response: The EPA's Energy Star ratings have helped to foster development and acceptance of higher efficiency devices in the past and believes it is reasonable to expect applying the same approach to plug or "phantom" loads would also be successful. IPL suggests behavioral changes in energy consumption related to plug load is hard to forecast. However, the adoption of savings techniques related to plug load will likely be relative to the degree to which the customer can realize significant savings.

MEC Response: The U.S. Department of Energy currently has several rulemakings underway that look at the standards for appliances like battery chargers, set top boxes, computers, etc. The status and impact of rulemaking activities related to these appliances can be found at the Appliance Standards Awareness Project website.³¹ Battery chargers are under active consideration and have no current standards.³² It is estimated that standards for consumer battery chargers would save 127 TWh cumulatively on a national level by 2030 and generate \$5.8 billion in net present value spending. MEC believes that since there are only a few ways to cut standby power use without leading to inconvenience, improvements in technologies or federal standards would be a more effective approach than behavior changes by customers. MEC developed an educational piece on phantom load as part of its energy efficiency settlement in Docket EEP-08-2, which it distributes to its customers at events promoting energy efficiency.

Consumer Advocate Response: Currently there are no federal standards on standby power. However, the federal government does run the following two programs that promote more efficient standby power devices.

1. Energy Independence and Security Act (EISA 2007) and Executive Order 13221 require Federal agencies to purchase products with a standby power

³¹ <http://www.appliance-standards.org/products>

³² <http://www.appliance-standards.org/product/battery-chargers>

level of 1 Watt or less. The U.S. Department of Energy (DOE) manages a website to help buyers find low standby power products.³³

2. The DOE regulates external power supplies and battery chargers based on the EISA 2007 legislation, mandating minimum energy-performance standards.³⁴
3. California is the only state that regulates standby power, limiting external power supply standby power to 0.5 Watts.³⁵

Issues relating to phantom loads will not be resolved soon by improvements in specific technologies or federal standards. New devices will be more efficient thanks to the research work that has been done and government intervention around the world. According to the California study, considerable progress has been made; however, many newer high-resolution products will draw even more power when switched off. Consumers need to be educated to change behaviors to reduce standby mode energy consumption, including:

1. Plugging devices into a power strip and turning off the strip;
2. Purchasing ENERGY STAR appliances; and
3. Replacing old heavy chargers with new chargers.

IAEC Response: IAEC is unaware of any utility programs that address phantom load issues. It appears federal standards would be a reasonable approach to address the issue.

18. General Comments

Dr. Crosby Response: Dr. Crosby discusses several issues related to smart grid but sums up his concerns by saying:

It seems clear that the Iowa Utilities Board as an entity representing the interests of the ordinary citizens of Iowa must:

1. Seek legislation which allows your regulations to directly control the activities and practices of all utility service providers (public, REC, municipal, re-sellers, etc.) operating within the State of Iowa.

³³ http://www1.eere.energy.gov/femp/technologies/standby_power.aspx

³⁴ http://www1.eere.energy.gov/buildings/appliance_standards/residential/battery_external.html

³⁵ http://www.energy.ca.gov/releases/2007_releases/2007-06-30_power_supplies.html

2. Require that all SmartMeters installations, both primary and secondary, must provide the end-user with real-time access to use data via a standard wireless computer interface.
3. Require all utility providers using SmartMeter data for billing purposes to provide rate data in a standardized format in a central location.
4. Require that all utility providers acknowledge the legal ownership of data generated at the "retail level" is legally owned by the customer; and that any use of that data beyond the establishment of fair and accurate utility use charges must be specifically granted by each customer.
5. That income generated by the sale of data to third parties (minus reasonable fees) be specifically rebated to customers on an annual basis. Data transfers, internally or externally, must be priced at fair market value. In addition, the transfer of data must be documented in a standardized format on a common free publically accessible website. Secondary and subsequent transfers of customer data must also be documented.
6. If a company chooses to limit customer access to real-time data from an installed SmartMeter, it must reimburse each customer for the cost of a real-time monitoring system that the customer choses to acquire and install that technology.
7. I would like to suggest that the IUB require utilities to initiate educational programs related to SmartMeter technology. However, because utility providers like to bias their educational efforts relative to plans, approaches, benefits, etc. of technologies, I propose that the IUB per se develop objective and complete educational materials on smart metering technologies, the benefits of this technology, issues associated with the technology, etc.

III. Questions Regarding Aggregators of Retail Customers (ARC) Issues

MEC Response: MEC concurs with the Board's ruling and believes ARCs are prohibited from directly serving customers by Iowa's exclusive assigned electric service area provisions. Although the Midwest Independent Transmission System Operator, Inc. (MISO) filed tariff revisions with the Federal Energy Regulatory Commission (FERC) to reflect ARCs,³⁶ they have not been acted upon by FERC. In Order No. 719-

³⁶ Filed on October 2, 2009, in Docket No. ER09-1049-002

A,³⁷ FERC recognized that MISO cannot accept bids from ARCs if prohibited by law or regulation. Therefore, there have not been any proceedings on the federal level that would prompt the Board to re-examine its earlier decision.

DR Supporters Response: Demand response should be encouraged to the greatest extent reasonable in Iowa. It provides economic benefits to participants, which can lead to significant competitive and economic development advantages for Iowa. Particularly in industries with high energy costs or those with very competitive pricing, the ability to fully participate in demand response programs can be influential to a company's success and to its decisions as to where to locate facilities. It also provides benefits to all customers and plays an important role in ensuring the reliability of grid operations and the competitiveness of the MISO market. In its October 28, 2008, Order No. 719, FERC stated:

Demand response can provide competitive pressure to reduce wholesale power prices; increase awareness of energy usage; provides for more efficient operation of markets; mitigates market power; enhances reliability; and in combination with certain new technologies, can support the use of renewable energy resources, distributed generation, and advanced metering.

ARCs are not permitted to be a market participant within MISO's footprint. However, they have been active participants in stakeholder meetings at MISO and in several ARC proceedings on the state utility commission level throughout the MISO footprint.

1. How might the operation of ARCs in Iowa affect the participation of utility customers in demand response tariffs or programs, such as interruptible, time-of-use, or direct load control programs?

IPL Response: ARCs operating in Iowa would have a negative impact on its current demand response programs. IPL customers would need to decide if they wanted to participate in IPL's interruptible program or provide demand response through ARCs. If the demand response is provided through the ARC, the customer would be subject to the entire grid's interruption requests and would not necessarily be available for when IPL requires. Additionally those customers would need to take firm service from IPL, foregoing IPL's interruptible demand credit. IPL does not consider time-of-use rates to be a demand response option since these rates are available throughout the year and not just on peak usage days. Accordingly, IPL does not believe that participation in

³⁷ *Wholesale Competition in Regions with Organized Electric Market*, 125 FERC ¶ 61,071 (October 17, 2008), 73 Fed. Reg. 64,100 (Oct. 28, 2008), FERC Stats & Regs, ¶ 31,281 (2008); *order on reh'g*, 128 FERC ¶ 61,059 (July 16, 2009), 74 Fed. Reg. 37,772 (July 29, 2009), FERC Stats. & Regs. ¶ 31,292 (2009); *order on reh'g*. 129 FERC ¶ 61,252 (December 17, 2009).

time-of-use rates would be affected. IPL believes that its overall energy efficiency plan would be less cost effective because customers might think they are saving on energy costs by participating in an ARC demand response program, and that they therefore do not need to save energy by participating in IPL's energy efficiency program. Ultimately, IPL would no longer be able to claim demand impact savings for those customers who participate through the ARC.

MEC Response: Recognizing that ARCs are an alternative to utility energy efficiency and demand response programs, MEC has worked to establish terms that are as flexible as possible while remaining consistent with the MISO tariff. If the demand response program of a MISO ARC is chosen over a retail utility's program, the direct benefits will be lost and will accrue to the entire MISO grid, rather than directly to the retail utility and its customers.

Consumer Advocate Response: It is very possible that ARCs could enable more diverse load management and demand response programs and thereby expand the number of participants and overall amount of interruptible and demand response enrolled in such programs. Since ARCs can only operate in Iowa in cooperation with electric utilities, these expanded opportunities would likely only occur in conjunction with current rate-regulated operations and demand side management programs. Without the current restrictions on their activities in Iowa, ARCs would be able to directly offer aggregated demand response services and potentially compete with demand side management programs operated by electric utilities. It is unknown what impact this would have on the utilities' demand side management programs.

IAEC Response: IAEC echoes the Board's prior concerns of whether the operation of ARCs in Iowa would be inconsistent with the exclusive assigned electric service territory law.

MRES Response: ARCs should not be permitted in Iowa because they would reduce the ability of MRES to provide efficient services to its members and potentially cause disruptive effects on the demand response efforts of MRES and its members. MRES and its members continue to make substantial investment in energy efficiency. For instance during calendar year 2010 MRES paid more than \$1.8 million in rebates to its member businesses and homeowners for lighting upgrades. MRES members achieved demand savings of 5.2 MW and energy savings of 26,494,210 kWh in 2010. MRES contends that it is important to the effectiveness of the demand response programs that the local utilities control these programs. It would be harmful to the demand response of MRES and its members, as load-serving entities with an obligation to serve at retail, and the members' retail customers to permit any entity other than MRES or the member itself to aggregate demand response on behalf of its retail customers.

DR Supporters Response: The impact of ARCs cannot be fully determined until the opportunities are defined but suggest that ARCs can typically increase customer participation levels. DR Supporters recommend the Board provide a forum where options for ARC participation can be considered. The DR Supporters point out that

demand response in the wholesale markets is not a subsidized resource so lowans could save program costs and personnel resources if ARCs are allowed to operate in Iowa.

2. How might the operation of ARCs in Iowa affect the forecasts of Iowa utilities with respect to peak load, reserve margins, energy sales, and other parameters?

IPL Response: Vertically integrated utilities do not need to have capacity to supply interruptible load for planning purposes, but if current interruptible customers decide to participate with ARCs, their load would be considered firm load for capacity planning purposes. In effect, the utilities would need to procure additional capacity resources for the former interruptible load plus the requisite reserve margin.

MEC Response: The proposed MISO ARC tariff required that the utility be notified whenever an ARC registered in its region. For this reason MEC's 2010 response to this question was that ARCs would not significantly hamper MEC's ability to forecast peak load and energy usage. However, since the MISO tariff has not been implemented, and it is not known whether a retail utility would know whether its customers had selected to be interrupted as MISO ARCs, presumably their loads would need to be treated as firm by the retail utility for planning purposes with corresponding requirements to procure reserve margin.

Consumer Advocate Response: Assuming ARCs would need to meet MISO's criteria for demand response compensation, this should generally align with existing criteria for interruptible load for which the utilities currently adjust peak load and reserve margin forecasts. Currently energy savings with demand response is not a significant source of energy savings impacts.

IAEC Response: IAEC believes it is difficult to answer this question without knowing the structure and how many customers would participate through ARCs.

DR Supporters Response: DR Supporters agree with MEC's April 1, 2010, response where they stated that the operation of ARCs would not significantly hamper the ability of the utility to forecast peak load and energy usage.

3. If ARCs are allowed to operate in Iowa, would utilities seek to alter the goals in their energy efficiency plans for capacity and energy savings?

IPL Response: It is likely IPL would need to modify its current energy efficiency plan in ways IPL does not yet understand. IPL's approved five-year plan is designed to achieve 449 MW of capacity savings and 835,555 MWh of energy savings by 2013, from its start in 2009. The demand response programs, Non-Residential, Interruptible, and Residential DLC represent 69 percent of the capacity and 0.1 percent of this overall

energy savings. IPL would seek to adjust the goals accordingly to align with current market conditions. In addition, IPL would need to re-evaluate its interruptible program and tariff to determine what changes are warranted to the program, tariff, or prices.

MEC Response: Until there are rules for ARC programs MEC is unable to determine the impact on its energy efficiency programs. If ARCs are allowed to operate in Iowa, MEC may revise its energy efficiency plans but the revision would be based on its interaction and actual experience with ARCs rather than hypothetical concepts of how they will operate and affect Iowa retail electric customers.

Consumer Advocate Response: It is difficult to estimate the impact, however, it is possible that ARCs would target demand response that is not current enrolled in a utility demand side management (DSM) program. Perhaps ARC operations in Iowa would stimulate changes in utility DSM programs that would yield higher levels of participation, in which case any resulting impacts should be reflected in energy efficiency goals.

IAEC Response: IAEC does not set energy efficiency goals for its member utilities and therefore does not have a response to this question.

DR Supporters Response: DR Supporters believe that ARC participation should add value to current utility demand response programs and options for the customer rather than shifting existing program capacity away from the utility. Furthermore, DR supporters suggest that ARCs are uniquely positioned to monitor and develop demand response technology across the country and provide Iowa customers with opportunities and expertise that take advantage of demand response benefits.

4. If the Board takes no action with respect to ARCs, what effect will that have on Iowa load serving entities in the short-term and long-term?

IPL Response: While the Board order temporarily prohibits ARCs from operating in Iowa, IPL anticipates potential litigation if there is no preemptive action by the Board to make a final statement prohibiting the operation of ARCs in Iowa.

MEC Response: If the Board takes no further action regarding ARCs, it is possible that an ARC could file a complaint asking the Board to remove the temporary prohibition or a request for a declaratory ruling on the legal issues. MEC suggests that is in the Iowa retail customers' interests for the Board act on its own motion by employing a rulemaking or investigation administrative process rather than waiting for a complaint or declaratory order request.

Consumer Advocate Response: If the Board takes no action with respect to ARCs, the Consumer Advocate expects a continuation of the status quo for Iowa load serving entities.

IAEC Response: Since ARCs are currently precluded from operating in Iowa, IAEC does not anticipate any changes resulting from the continuation of this prohibition.

MRES Response: The Board of Directors of MRES has adopted a policy providing that only MRES or its authorized designee may bid demand response into the market on behalf of a retail customer of an MRES member. MRES also maintains that the ARC business model reduces demand when prices are high without considering environmental impacts. MRES operates demand response when prices are high and MRES generation resources are limited which in turn helps reduce the amount of new generation that MRES needs to add to its system and the impact that new generation would have on the environment.

DR Supporters Response: DR Supporters challenge the Board to consider the effect on customers when evaluating any action (or inaction) related to ARCs. Additionally the DR Supporters argue that because of the requirement that demand response resources must be cost-effective in order to be dispatched, Iowa customers would see a net benefit when demand response is dispatched to lower average prices.

IV. Staff Analysis

This NOI was initiated in response to the requirements of the Energy Independence and Security Act of 2007 (EISA). It was subsequently expanded to explore smart grid deployment in Iowa and to address the issue of the ARCs operating in Iowa.³⁸ The Board issued its Order Soliciting Comments on October 14, 2011, on smart grid and ARC issues.

Smart Grid Issue: The comments related to smart grid provided an overview of current activity and technological advances. This staff memo will also serve as a resource document and includes footnoted links to reports and websites provided in the comments. Generally, Iowa utilities continue to monitor smart grid initiatives throughout the country. A common thread throughout the comments was the importance of focusing on the balance between customer value and reasonable cost. The Consumer Advocate and IPL see distribution system enhancements as leading smart grid opportunities.

Current activities in Iowa include the following:

IPL developed an option which allows industrial customers to view daily usage via a web-based interface and receive monthly reports on that information.

³⁸ This became an issue due to FERC's directive to regional transmission organizations, such as MISO, to amend their rules to allow ARCs to offer demand resources into wholesale and ancillary services markets, if allowed by state commissions.

IPL also installed approximately 1,000 meters for Dubuque customers participating in the "Smarter Electricity Project."

MEC is deploying its Opower pilot project which provides home energy reports that include detailed usage information and tips for conserving energy.

IAEC reported that at least 10 of its members have plans to replace all of their meters within different time frames. In total approximately 84,000 meters will be replaced. When these projects are complete, more than 34 percent of their customers will have upgraded meters.³⁹

IAMU provided updates on two grant-funded projects—the \$5 million Smart Grid Investment Grant from the U.S. Department of Energy (5 Iowa utilities are participating), and the development of time-of-use rates for three utilities. These two grants are also providing funding for deployment of smart meters and data collection systems in Algona (system-wide deployment), Atlantic, Cedar Falls, and Waverly (pilot projects of various sizes). Spencer completed a system-wide conversion to AMI without rand funds.

Generally, the Iowa investor-owned utilities have no current plans to rapidly deploy smart grid technologies. They continue to monitor technological advances and smart grid initiatives around the country. The smart grid team plans to continue monitoring smart grid developments and recommends that the team provide the Board with an update in one year. Staff recommends that the Board take no further action at this time with regard to smart grid.

ARC Issue: On March 29, 2010, the Board issued its Order Temporarily Prohibiting Aggregators of Retail Customers from Operating in Iowa and Allowing Comments. This order temporarily prohibits ARCs from operating in Iowa and also prohibits retail customers or third-party ARCs from transferring demand response load reductions to MISO markets. The order indicates that the Board may continue, withdraw, or modify the temporary prohibition of ARCs operating in Iowa. MEC, IPL, IAEC, and MRES each state that ARCs should continue to be prohibited from operating in Iowa. DR Supporters believe ARC participation could add value to current utility demand response programs and recommends that the Board provide a forum where options for ARC participation can be considered. The Consumer Advocate responded to the ARC questions, and did not take a firm position. The Consumer Advocate noted that ARC activity in Iowa might stimulate changes in utility DSM programs and ultimately achieve high participation levels. The Consumer Advocate also noted that if the Board takes no further action regarding ARCs it expects a continuation of the status quo. MEC

³⁹ Based on the 2010 annual report data filed with the Board.

recommends that the Board act on its own motion to address the ARC issue rather than wait for a complaint or declaratory order request.

Based on the information provided in the responses to the Board's questions on the ARC issue, staff recommends that the Board take no further action at this time. The March 29, 2010, order did not include a timeline for further Board action, and circumstances have not changed that warrant a change in the policy that prohibits ARC operations in Iowa.

V. Recommendation

Staff recommends that the Board direct General Counsel to draft an order for the Board's consideration notifying the parties that the Board appreciates the valuable input the parties provided in their comments. The Board intends to continue monitoring smart grid activities nationally and in Iowa and if circumstances warrant, the Board might seek additional comments on smart grid issues from stakeholders in the future. The order should also state that the Board will not lift the ban on ARC operations in Iowa at this time.

RECOMMENDATION APPROVED

IOWA UTILITIES BOARD

/s/ Elizabeth S. Jacobs 5-3-12
Date

/s/ Darrell Hanson 6-14-12
Date

/s/ Swati A. Dandekar 5-6-12
Date

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